

get the facts

Cancer and Complementary Health Practices



© Rhoda Baer

People with cancer want to do everything they can to combat the disease, manage its symptoms, and cope with the side effects of treatment. Many turn to complementary health practices, including natural products—such as botanical (herbal) and other dietary supplements—and mind and body therapies—such as acupuncture, massage, and yoga.

This fact sheet provides an introductory overview of these practices, including a summary of “what the science says.” The fact sheet is mainly for people who have been diagnosed with cancer, and for families and friends of people who are being treated for or recovering from cancer. This fact sheet also takes a brief look at research on some of the dietary supplements that people use in hope of preventing cancer.

Key Points

- There is limited scientific evidence suggesting that some of the complementary health practices discussed here may be useful in managing some symptoms of cancer and side effects of treatment. At present, there is no convincing evidence regarding the use of these practices in preventing or curing cancer.
- Before using any complementary health practice, people who have been diagnosed with cancer should talk with the health care providers who treat their condition—to make sure that all aspects of their cancer care work together. Be aware that some dietary supplements can interfere with standard cancer treatments.
- Tell all your health care providers about any complementary health practices you use. Give them a full picture of what you do to manage your health. This will help ensure coordinated and safe care.

About Cancer

Cancer is a group of related diseases that occur when abnormal cells divide without control. Cancer cells can invade and damage nearby tissues and spread to distant parts of the body through the blood

U.S. DEPARTMENT OF HEALTH
AND HUMAN SERVICES

National Institutes of Health

National Center for Complementary
and Alternative Medicine



NCAM

and the lymph systems. Although cancer remains the second leading cause of death in the United States, improvements in detection, diagnosis, and treatment have increased the survival rate for many types of cancer.

Detailed information on cancer is available from the National Cancer Institute at www.cancer.gov.

About Complementary Health Practices

The term **complementary health practices** refers to a group of diverse medical and health care systems, practices, and products that are not generally considered to be part of conventional medicine. It includes natural products, such as dietary supplements, herbs, and probiotics, as well as mind and body practices, such as meditation, acupuncture, and massage.

Some complementary health practices are beginning to find a place in cancer treatment—not as cures but as complementary approaches that may help patients feel better.

Use of Complementary Health Practices for Cancer

Many people who have been diagnosed with cancer use complementary health practices. In 2002 and 2007, the National Health Interview Survey (NHIS) included comprehensive questions on the use of complementary health practices by Americans. According to the 2007 NHIS, more than one-third of adults (about 38 percent) had used some form of complementary health practice. A special analysis of 2002 NHIS data found that use was more prevalent among people with a prior diagnosis of cancer. About 40 percent of cancer survivors reported using these practices; 18 percent had used multiple practices. Rates of use for cancer survivors were similar to rates for people with other chronic illnesses such as arthritis, asthma, inflammatory bowel disease, irritable bowel syndrome, or ulcers. The most popular practices among cancer survivors were herbal and other natural products (20 percent), deep breathing (14 percent), and meditation (9 percent).

Other surveys also find that use of complementary health practices is common among people who have been diagnosed with cancer, although estimates of use vary widely. Studies have found that cancer patients who use these practices usually do not expect them to cure their disease. Rather, they hope to boost their immune system, relieve pain, or manage the side effects they are experiencing from the disease or its treatment. Few cancer patients say they use complementary health practices because they are disappointed with their standard treatment. Their motivation is more likely to be a perceived benefit from the practice, a desire to feel more in control of their health, or a strong belief in the practice.

Surveys also indicate that use of vitamin and mineral supplements is widespread among cancer patients and survivors, but many health care providers are unaware that their cancer patients are using these supplements.

What the Science Says

To date, relatively little is known about the safety and effectiveness of complementary health practices that people may use for cancer. However, some of these practices have undergone careful evaluation, and many more studies are being carried out every year. In 2009, the Society for

Integrative Oncology issued evidence-based clinical practice guidelines for health care providers to consider when incorporating complementary health practices in the care of cancer patients.

A comprehensive summary of research on complementary health practices for cancer is beyond the scope of this fact sheet. The following sections provide an overview of research status, highlighting results from a few reviews and studies in the areas of cancer prevention, treatment, and management of symptoms and side effects.

Complementary Health Practices for Cancer Prevention

Although researchers continue to investigate the possible role of **vitamin and mineral supplements** in preventing cancer, available evidence does not support taking these supplements for this purpose:

- A 2007 review of clinical trials looking at the effectiveness of multivitamin/mineral supplements for cancer prevention found that few such trials have been conducted, and that the results of most large-scale trials have been mixed. According to the National Cancer Institute, the following supplements have been studied but have not been shown to lower the risk of cancer: vitamins B6, B12, E, and C; beta-carotene; folic acid; and selenium.
- Two large-scale studies—the Alpha-Tocopherol, Beta-Carotene (ATBC) Cancer Prevention Trial and the Beta-Carotene and Retinol Efficacy Trial (CARET)—found evidence that supplements containing beta-carotene increased the risk of lung cancer among smokers.
- An independent review of data from the Selenium and Vitamin E Cancer Prevention Trial (SELECT), funded by the National Cancer Institute, the National Center for Complementary and Alternative Medicine (NCCAM), and other agencies at the National Institutes of Health (NIH), showed that selenium and vitamin E supplements, taken either alone or together, did not prevent prostate cancer. A 2011 updated analysis from this trial concluded that vitamin E supplements significantly increased the incidence of prostate cancer in healthy men. At a median followup of 7 years, the researchers observed that the incidence of prostate cancer was increased by 17 percent in men who received the vitamin E supplement alone compared with those who received placebo. There was no increased incidence of prostate cancer when vitamin E and selenium were taken together.
- A 2003 Agency for Healthcare Research and Quality (AHRQ) review found little evidence of cancer prevention benefits from three antioxidants (vitamins C and E and coenzyme Q10).
- A 2008 review of 20 clinical trials found no convincing evidence that antioxidant supplements prevent gastrointestinal cancer, but did find indications that some might actually increase overall mortality. The review looked at beta-carotene, selenium, and vitamins A, C, and E. Selenium alone demonstrated some preventive benefits.
- Higher intake of calcium may be associated with reduced risk of colorectal cancer, but the National Cancer Institute has concluded that the available evidence does not support taking calcium supplements to prevent colorectal cancer.

A 2009 review of 51 studies with more than 1.6 million participants found “insufficient and conflicting” evidence regarding an association between **green tea** consumption and cancer prevention.

Additional information on cancer prevention is available from the National Cancer Institute at www.cancer.gov/cancertopics/pdq/prevention/overview/patient.

Complementary Health Practices for Cancer Treatment

A 2008 review of the research literature concluded that some **botanical supplements** used in Ayurvedic medicine and traditional Chinese medicine may have a role in cancer treatment. However, scientific evidence is limited—much of the research on botanicals and cancer treatment is in the early stages. The review also notes that botanicals can have side effects and can interact with cancer drugs, blood thinners and other prescription drugs, and each other.

It is unclear whether the use of **vitamin and mineral supplements** by people who have been diagnosed with cancer is beneficial or harmful. For example, taking a daily multivitamin might improve the nutritional status of patients who cannot eat a healthful diet, but there is concern that some supplements might interfere with cancer treatment or increase the risk of a recurrence. Related studies have been inconsistent or inconclusive.

While some research has reported benefits from taking **antioxidants** for cancer, there is not enough scientific evidence to support their use by cancer patients. A 2003 AHRQ review of cancer-related research on three antioxidants (vitamins C and E and coenzyme Q10) found little scientific evidence of cancer treatment benefits. Patients’ use of antioxidants while undergoing chemotherapy or radiation therapy has not been well studied. However, a 2008 review of published research suggests that antioxidant supplements may decrease the effectiveness of chemotherapy and radiation therapy.

Complementary Health Practices for Cancer Symptoms and Side Effects

Studies have found **acupuncture** to be useful in managing chemotherapy-associated vomiting in some cancer patients. Although some early studies have shown beneficial effects, research on acupuncture for cancer pain control and for management of other cancer symptoms is limited. A 2008 evidence-based review of clinical options for managing nausea and vomiting in cancer patients noted electroacupuncture as an option to be considered.

Various studies also suggest possible benefits of **hypnosis, massage, meditation, and yoga** in helping cancer patients manage side effects and symptoms of the disease. For example, a study of 380 patients with advanced cancer concluded that massage therapy may offer some immediate relief for these patients, and that simple touch therapy (placing both hands on specific body sites)—which can be provided by family members and volunteers—may also be helpful. The study was conducted at 15 hospices in the Population-based Palliative Care Research Network.

A 2008 review of the research literature on **botanicals** and cancer concluded that although several botanicals have shown promise for managing side effects and symptoms such as nausea and vomiting, pain, fatigue, and insomnia, the scientific evidence is limited (the reviewers did not find sufficient evidence to recommend any specific treatment), and many

clinical trials have not been well designed. As with use for cancer treatment, use of botanicals for symptom management raises concerns about interactions with cancer drugs, other drugs, and other botanicals.

Safety: Some Precautions for Cancer Patients

Some **dietary supplements** can interfere with cancer treatments; for example, the herb St. John's wort may cause certain anticancer drugs not to work as well as they should, and high doses of vitamins (even vitamin C) may affect how chemotherapy and radiation work. There are also general safety cautions about dietary supplements to be aware of; for example, some products may contain ingredients that are not on the label. Related information is available from NCCAM at nccam.nih.gov/health/supplements/wiseuse.htm.

Complications from **acupuncture** are very rare, as long as the acupuncturist uses sterile needles and proper procedures. Because chemotherapy and radiation therapy weaken the body's immune system, cancer patients who are undergoing these therapies should be sure that the acupuncturist follows strict clean-needle procedures. The acupuncturist should use new disposable (single-use) needles for each patient.

Although **massage therapy** appears to be generally safe, cancer patients should consult the health care provider who treats their cancer before they have a massage that involves deep or intense pressure. Any direct pressure over a tumor usually is discouraged.

NIH Research on Complementary Health Practices for Cancer

NCCAM funds numerous laboratory studies and clinical trials related to cancer. Recent NCCAM-supported clinical trials have been investigating:

- Massage for swelling of the arms and legs (lymphedema) related to breast cancer treatment
- Tai chi for physical fitness and stress in cancer survivors
- Yoga and qi gong for fatigue in breast cancer survivors.

In addition to NCCAM-funded research on cancer, the National Cancer Institute conducts many studies through its Office of Cancer Complementary and Alternative Medicine (OCCAM), some of which are cofunded with NCCAM. Additional information on OCCAM is available at www.cancer.gov/cam.

If You Have Been Diagnosed With Cancer and Are Considering a Complementary Health Practice

- Cancer patients need to make informed decisions about using complementary health practices. NCCAM and the National Cancer Institute have written a brochure that can help: *Thinking About Complementary and Alternative Medicine: A Guide for People with Cancer* (www.cancer.gov/cancertopics/thinking-about-CAM).
- Gather information about the complementary health product or therapy that interests you, and then discuss it with your health care providers. If you have been diagnosed with cancer, it is especially important to talk with your health care providers before you use any complementary health practice. Some practices may interfere with standard treatment or may be harmful when used along with standard treatment. Examples of questions to ask include:
 - What is known about the benefits and risks of this complementary health product or therapy? Do the benefits outweigh the risks?
 - What are the potential side effects?
 - Will this complementary health practice interfere with conventional treatment?
 - Can you refer me to a practitioner who provides the complementary health product or therapy?
- Do not use any health product or therapy that has not been proven safe and effective as a replacement for conventional cancer care or as a reason to postpone seeing your health care provider about any medical problem.
- Tell all your health care providers about any complementary health practices you use. Give them a full picture of what you do to manage your health. This will help ensure coordinated and safe care. For tips about talking with your health care providers about complementary and alternative medicine, see NCCAM's Time to Talk campaign at nccam.nih.gov/timetotalk.

Selected References

- Barnes PM, Bloom B, Nahin RL. Complementary and alternative medicine use among adults and children: United States, 2007. *CDC National Health Statistics Report #12*. 2008.
- Bjelakovic G, Nikolova D, Simonetti RG, et al. Antioxidant supplements for preventing gastrointestinal cancers. *Cochrane Database of Systematic Reviews*. 2008;(3):CD004183. Accessed at <http://www.thecochranelibrary.com> on April 7, 2010.
- Boehm K, Borrelli F, Ernst E, et al. Green tea (*Camellia sinensis*) for the prevention of cancer. *Cochrane Database of Systematic Reviews*. 2009;(3):CD005004. Accessed at <http://www.thecochranelibrary.com> on April 10, 2010.
- Cohen AJ, Menter A, Hale L. Acupuncture: role in comprehensive cancer care—a primer for the oncologist and review of the literature. *Integrative Cancer Therapies*. 2005;4(2):131-143.
- Coulter I, Hardy M, Shekelle P, et al. *Effect of the Supplemental Use of Antioxidants Vitamin C, Vitamin E, and Coenzyme Q10 for the Prevention and Treatment of Cancer*. Evidence Report/Technology Assessment No. 75. Rockville, MD: Agency for Healthcare Research and Quality; 2003. AHRQ Publication No. 04-E003.
- Deng GE, Frenkel M, Cohen L, et al. Evidence-based clinical practice guidelines for integrative oncology: complementary therapies and botanicals. *Journal of the Society for Integrative Oncology*. 2009;7(3):85-120.

- Dy G, Bekele L, Hanson L, et al. Complementary and alternative medicine use by patients enrolled onto phase I clinical trials. *Journal of Clinical Oncology*. 2004;22(23):4810-4815.
- Ernst E. Massage therapy for cancer palliation and supportive care: a systematic review of randomised clinical trials. *Supportive Care in Cancer*. 2009;17(4):333-337.
- Ezzo J, Richardson MA, Vickers A, et al. Acupuncture-point stimulation for chemotherapy-induced nausea or vomiting. *Cochrane Database of Systematic Reviews*. 2006;(2):CD002285. Accessed at <http://www.thecochranelibrary.com> on April 7, 2010.
- Frenkel M, Ben-Ayre B, Baldwin C, et al. Approach to communicating with patients about the use of nutritional supplements in cancer care. *Southern Medical Journal*. 2005;98(3):289-294.
- Gansler T, Chiewkwei K, Crammer C, et al. A population-based study of prevalence of complementary methods use by cancer survivors: a report from the American Cancer Society's studies of cancer survivors. *Cancer*. 2008;113(5):1048-1057.
- Greenwald P, Anderson D, Nelson SA, et al. Clinical trials of vitamin and mineral supplements for cancer prevention. *American Journal of Clinical Nutrition*. 2007;85(1):314S-317S.
- Kutner J, Smith M, Corbin S, et al. Massage therapy versus simple touch to improve pain and mood in patients with advanced cancer: a randomized trial. *Annals of Internal Medicine*. 2008;149(6):369-379.
- Lawenda BD, Kelly KM, Ladas EJ, et al. Should supplemental antioxidant administration be avoided during chemotherapy and radiation therapy? *Journal of the National Cancer Institute*. 2008;100(11):773-783.
- Lippman SM, Klein EA, Goodman PJ, et al. Effect of selenium and vitamin E on risk of prostate cancer and other cancers: the Selenium and Vitamin E Cancer Prevention Trial (SELECT). *JAMA*. 2009;301(1):39-51.
- Manksy PJ, Wallerstedt DB. Complementary medicine in palliative care and cancer symptom management. *Cancer Journal*. 2006;12(5):425-431.
- Mao JJ, Farrar JT, Xie SX, et al. Use of complementary and alternative medicine and prayer among a national sample of cancer survivors compared to other populations without cancer. *Complementary Therapies in Medicine*. 2007;15(1):21-29.
- Miller S, Stagl J, Wallerstedt DB, et al. Botanicals used in complementary and alternative medicine treatment of cancer: clinical science and future perspectives. *Expert Opinion on Investigational Drugs*. 2008;17(9):1353-1364.
- Naeim A, Dy S, Lorenz K, et al. Evidence-based recommendations for cancer nausea and vomiting. *Journal of Clinical Oncology*. 2008;26(23):3903-3910.
- National Cancer Institute. *Calcium and Cancer Prevention: Strengths and Limits of the Evidence*. National Cancer Institute Web site. Accessed at <http://www.cancer.gov/cancertopics/factsheet/prevention/calcium#9> on April 9, 2010.
- National Cancer Institute. *Complementary and Alternative Medicine in Cancer Treatment (PDQ), Patient Version*. National Cancer Institute Web site. Accessed at <http://www.cancer.gov/cancertopics/pdq/cam/cam-cancer-treatment/patient/allpages> on April 13, 2010.
- National Cancer Institute, National Center for Complementary and Alternative Medicine. *Thinking About Complementary and Alternative Medicine: A Guide for People With Cancer*. National Cancer Institute Web site. Accessed at <http://www.cancer.gov/cancertopics/thinking-about-CAM> on April 13, 2010.
- Richardson M, Straus S. Complementary and alternative medicine: opportunities and challenges for cancer management and research. *Seminars in Oncology*. 2002;29(6):531-545.
- Sagar SM. Acupuncture as an evidence-based option for symptom control in cancer patients. *Current Treatment Options in Oncology*. 2008;9(2-3):117-126.
- Sagar SM, Lawenda BD. The role of integrative oncology in a tertiary prevention survivorship program. *Preventive Medicine*. 2009;49(2-3):93-98.

Smith KB, Pukall CF. An evidence-based review of yoga as a complementary intervention for patients with cancer. *Psycho-Oncology*. 2009;18(5):465-475.

Sparber A, Wooton J. Surveys of complementary and alternative medicine: Part II. Use of alternative and complementary cancer therapies. *Journal of Alternative and Complementary Medicine*. 2001;7(3):281-287.

Velicer CM, Ulrich CM. Vitamin and mineral supplement use among U.S. adults after cancer diagnosis: a systematic review. *Journal of Clinical Oncology*. 2008;26(4):665-673.

Verhoef MJ, Balneaves LG, Boon HS, et al. Reasons for and characteristics associated with complementary and alternative medicine use among adult cancer patients: a systematic review. *Integrative Cancer Therapies*. 2005;4(4):274-286.

For More Information

NCCAM Clearinghouse

The NCCAM Clearinghouse provides information on NCCAM and complementary health practices, including publications and searches of Federal databases of scientific and medical literature. The Clearinghouse does not provide medical advice, treatment recommendations, or referrals to practitioners.

Toll-free in the U.S.: 1-888-644-6226

TTY (for deaf and hard-of-hearing callers): 1-866-464-3615

Web site: nccam.nih.gov

E-mail: info@nccam.nih.gov

National Cancer Institute

The National Cancer Institute is the Federal Government's lead agency for cancer research. The agency's Cancer Information Service provides comprehensive information about cancer.

Toll-free in the U.S.: 1-800-4-CANCER (1-800-422-6237)

Web site: www.cancer.gov

E-mail: cancergovstaff@mail.nih.gov

The National Cancer Institute's Office of Cancer Complementary and Alternative Medicine coordinates and enhances the National Cancer Institute's activities in complementary and alternative medicine research.

Web site: www.cancer.gov/cam

PubMed®

A service of the National Library of Medicine, PubMed contains publication information and (in most cases) brief summaries of articles from scientific and medical journals.

Web site: www.ncbi.nlm.nih.gov/sites/entrez

Acknowledgments

NCCAM thanks the following individuals for their technical expertise and review of this publication: Lorna Patrick, National Cancer Institute; Cornelia Ulrich, Ph.D., Fred Hutchinson Cancer Research Center; Jeffrey White, M.D., National Cancer Institute; Scott Miller, M.D., NCCAM; and Barbara Sorkin, Ph.D., NCCAM.

*This publication is not copyrighted and is in the public domain.
Duplication is encouraged.*

NCCAM has provided this material for your information. It is not intended to substitute for the medical expertise and advice of your primary health care provider. We encourage you to discuss any decisions about treatment or care with your health care provider. The mention of any product, service, or therapy is not an endorsement by NCCAM.

National Institutes of Health



U.S. Department of Health and Human Services

